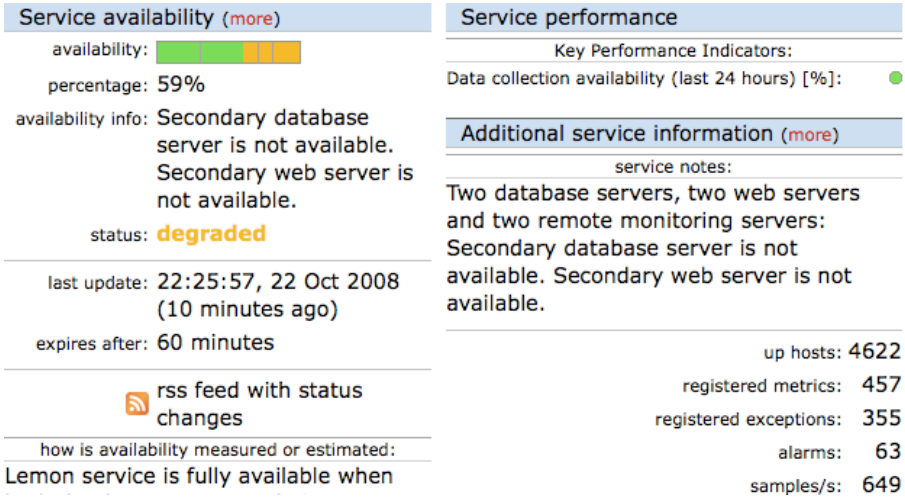
Minutes 10/22/2008 . Meeting to discuss mode and monitoring of operations of CMS storage and computing facility.
Present : Andrew B. Jon Bakken

Jon special need is general **health page** that assesses states of all systems involved in production. It's common that "health" page typically contains "colored coded balls" for each instance of the service. That's not acceptable. Operators need to see a **bar or a meeter of how FAR system parameters deviated from acceptable normal. Idea: adaptive tracking of deviations....**

Drill down view are important in observing system state. There should be no limit to the detail level of bottom of the view.

CERN it group has developed interesting monitoring product - LeMon. It extensively uses bar indicators and condensed page layouts to display status information. This is in line with what would be good to have for CMS operations. However, Jon does not insists on supporting that particular product.



Part II
dCache and Storage
We use dCache billing database to extract various transfer statistics. Transfer rate statistics in particular are usually sufficient to give impression of whether the system is in a healthy state. That assessment is based on personal experience. For example, in production mode there is expectation of a level of transfer rates . **A deviation** from expected rates is not normal and needs to be investigated. dCache information portal is using Lazlo as plotting tool.

Again,dCache has some notion of the health page but we need more concise presentation of health indicators attributed to each storage subsystem. That presentation must be drill downable.

Troublshooting of user activities are more difficult. We use CPU utilization as one of the indicators. Low utilization - job is IO bound. Flag the case as storage related. Thats a guess. We use condor monitoring to see CPU utilization and state of the job on our own web page. Would be nice to have it also integrated into the "health" page.

Part III Misc
Monitoring of maintenance processes . CMS production is surrounded by monitoring and maintenance processes. Each instance may need to be monitored separately. Some of these processes work by writing interesting event records into a log file. These records are extracted and summary pages are built . The log file storage and page generation is in house development. Typically these pages are hosted on a standalone web server. Generic warehouse could be used to store event data too. We have not had time to implement that using Zabbix.

Zabbix:
Zabbix is metrics data storage and visualization tool. Any kind of quantifiable data can be put in. We try to use it as much as we can. In fact, we have people in charge writing Zabbix sensors. At this moment, we support (or have evidence of) 200000 Monitored elements. The tool builds time series and allows rules to aggregate status of various elements. Not all of the is required or interesting hence the following usecase. Usecase: We extract data from Zabix and plot its particular aspect in our own way. **In general , get the data and plot it via general view was a good idea but it was hard to work with and the tool was slow.**

Jon expects Zabbix store 6 month worth of data. After that , the data (or most of it) becomes irrelevant. From CMS op perspective Zabix is perfect **data warehouse.**